

REMARKS

Favorable reconsideration of this application as presented herein is requested. Claims 1-23 are pending in the present application. In the above amendments, claims 1 and 12 have been amended.

In the Office Action mailed November 24, 2003, the Examiner rejected claims 1-2, 4, 9-14, 16, and 21-23 under 35 U.S.C. § 102(e), claims 3 and 15 under 35 U.S.C. § 103(a), claims 6-8 and 18-20 under 35 U.S.C. § 103(a), and claims 5 and 17 under 35 U.S.C. § 103(a).

Applicant respectfully responds to this Office Action.

Claim Rejections Under 35 U.S.C. § 102(e)

The Examiner rejected claims 1-2, 4, 9-14, 16, and 21-23 under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,421,005 to Weaver et al.

The present invention relates to a method and system for forward link beam forming in wireless communications. One aspect of the invention overcomes the need in the art for reducing interference between users and for increasing system capacity by providing signal transmission using accurate antenna beam patterns. According to one embodiment of the invention, accurate antenna beam patterns are formed on the forward link without incurring signal transmission overhead on the return link. One aspect of the invention provides accurate antenna beam patterns for signal transmission systems in a way which does not increase the complexity and cost of subscriber units and which is backward compatible with existing systems. (See Applicant's Specification, p.6, ll.2-10.)

To overcome this rejection, claim 1 has been amended to emphasize that narrowing the beam pattern is done relative to the position of the user. In the present invention, antenna beam pattern 110 has been narrowed to focus the signal transmission energy in the direction of user 108, rather than spreading the signal transmission energy across the entire width of the sector 104. Therefore, the interference for users other than user 108 caused by the communication signal transmitted in antenna beam pattern 110, which is intended for user 108, is reduced. (See Applicant's Specification, p.10, ll.6-11, and Figure 1.)

The invention in Weaver does not focus on a particular user and narrow the beam pattern relative to the user's position. Weaver merely proposes narrowing the beam width of one antenna component of the cylindrical array 100 and widening the beam width of another antenna component within the same cell. This technique reduces the load of another antenna component so as to more evenly distribute the load on the traffic cylindrical antenna array 100. In the present invention, narrowing the beam pattern with respect to a particular user results in a reduction of interference with respect to this user.

Claim 12 has been amended in the same manner as claim 1. Therefore, all the arguments mentioned above for claim 1 apply to claim 12. Consequently, the Weaver Patent does not anticipate the methods defined in claims 1 and 12 of the present application under 35 U.S.C. § 102(e) for at least the foregoing reasons. Claims 2, 4, and 9-11 depend from claim 1 and therefore include all the limitations of that independent claim. Claims 13-14, 16, and 21-23 depend from claim 12 and therefore include all the limitations of that independent claim. Since the Weaver Patent does not render claims 1-2, 4, 9-14, 16, and 21-23, as amended, unpatentable Applicant respectfully submits that the rejections thereof be withdrawn by the Examiner.

Claim Rejections Under 35 U.S.C. § 103

Next, the Examiner rejected claims 3 and 15 under 35 U.S.C. § 103(a) as being unpatentable over Weaver in view of U.S. Patent No. RE 37,218 to Densmore. To establish a prima facie case of obviousness three basic criteria must be met. First, there must be some suggestion or motivation of, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine the reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference(s) must teach or suggest all the claim limitations.

Claims 3 and 15 depend from claims 1 and 12, respectively. Claims 1 and 12 have been amended so the Weaver reference no longer discloses the method described in those claims. Thus, the Examiner's argument is moot. Additionally, absent hindsight of Applicant's invention, there is no motivation or teaching to combine Weaver with the Densmore reference because Densmore describes an automatic antenna positioning system for tracking a satellite from a moving vehicle, and not the narrowing of an antenna beam pattern for code division multiple

access communication systems. Applicant thus respectfully submits that claims 3 and 15 are not rendered obvious by the Weaver Patent when considered alone or in combination with Densmore.

Then the Examiner rejected claims 6-8 and 18-20 under 35 U.S.C. § 103(a) as being unpatentable over Weaver in view of U.S. Patent Application Publication 2002/0077111 A1 to Spaling et al. Claims 6-8 and 18-20 depend from claims 1 and 12, respectively. As mentioned above, claims 1 and 12 have been amended so the Weaver reference no longer discloses the method described in those claims. Thus, the Examiner's argument is moot. Additionally, absent hindsight of Applicant's invention, there is no motivation or teaching to combine Weaver with the Spaling reference because Spaling describes congestion control based on transmit power control commands issued in the cell over a particular time period, and not the narrowing of an antenna beam pattern for code division multiple access communication systems. Applicant thus respectfully submits that claims 6-8 and 18-20 are not rendered obvious by the Weaver Patent when considered alone or in combination with Spaling.

Finally, the Examiner rejected claims 5 and 17 under 35 U.S.C. § 103(a) as being unpatentable over Weaver in view of U.S. Patent No. 6,574,211 to Padovani et al. Claims 5 and 17 depend from claims 1 and 12, respectively. As mentioned above, claims 1 and 12 have been amended so the Weaver reference no longer discloses the method described in those claims. Thus, the Examiner's argument is moot. Additionally, absent hindsight of Applicant's invention, there is no motivation or teaching to combine Weaver with the Padovani reference because Padovani describes a high rate packet data transmission that improves utilization of the forward link and decreases the transmission delay, and not the narrowing of an antenna beam pattern for code division multiple access communication systems. Applicant thus respectfully submits that claims 5 and 17 are not rendered obvious by the Weaver Patent when considered alone or in combination with Padovani.

REQUEST FOR ALLOWANCE

In view of the foregoing, Applicant submits that all pending claims in the application are patentable. Accordingly, reconsideration and allowance of this application are earnestly solicited. Should any issues remain unresolved, the Examiner is encouraged to telephone the undersigned at the number provided below.

Respectfully submitted,

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By: _____

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